

Claims

1. A printed circuit board (PCB) assembly, comprising:
a printed circuit board (PCB) for connecting a plurality of electrical components, the PCB including a plurality of conductive layers each separated by a non-conductive layer; and

a first integrated conductive bus structure extending from a first edge of the PCB, wherein a first portion of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second portion of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes.

2. The assembly of claim 1, further including:
a filter block incorporated within the PCB approximate the integrated bus structure, the filter block providing inductive filtering for the contacts of the connector.

3. The assembly of claim 2, wherein the filter block is a ferrite material.

4. The assembly of claim 3, further including:
a plurality of capacitors positioned on at least one side of the assembly, wherein at least one of the capacitors is coupled between ground and each one of the contacts of the connector.

5. The assembly of claim 1, wherein the assembly is overmolded with a plastic material, and wherein a portion of the plastic material forms a connector housing that surrounds the contacts of the connector.

6. The assembly of claim 5, wherein the connector housing is shaped to receive a body of a mating connector.

7. The assembly of claim 1, wherein the integrated conductive bus structure is made of copper.

8. The assembly of claim 1, further comprising:
a second integrated conductive bus structure extending from a second edge of the PCB, wherein a first portion of the second integrated conductive bus structure that extends from the second edge of the PCB forms a plurality of second electrically separate contacts of a second connector and a second portion of the second integrated conductive bus structure that is integrated within the PCB couples each of the second electrically conductive contacts to at least one conductive trace of the PCB through different plated holes, and wherein the second edge is opposite the first edge.

9. A printed circuit board (PCB) assembly, comprising:
a printed circuit board (PCB) for connecting a plurality of electrical components, the PCB including a plurality of conductive layers each separated by a non-conductive layer; and
a first integrated conductive bus structure extending from a first edge of the PCB, wherein a first portion of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second portion of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes, and wherein the assembly is overmolded with a plastic material and a portion of the plastic material forms a connector housing that surrounds the contacts of the connector.

10. The assembly of claim 9, further including:

a filter block incorporated within the PCB approximate the integrated bus structure, the filter block providing inductive filtering for the contacts of the connector.

11. The assembly of claim 10, wherein the filter block is a ferrite material.

12. The assembly of claim 11, further including:
a plurality of capacitors positioned on at least one side of the assembly, wherein at least one of the capacitors is coupled between ground and each one of the contacts of the connector.

13. The assembly of claim 9, wherein the connector housing is shaped to receive a body of a mating connector.

14. The assembly of claim 9, wherein the integrated conductive bus structure is made of copper.

15. The assembly of claim 9, further comprising:
a second integrated conductive bus structure extending from a second edge of the PCB, wherein a first portion of the second integrated conductive bus structure that extends from the second edge of the PCB forms a plurality of second electrically separate contacts of a second connector and a second portion of the second integrated conductive bus structure that is integrated within the PCB couples each of the second electrically conductive contacts to at least one conductive trace of the PCB through different plated holes, and wherein the second edge is opposite the first edge.

16. A printed circuit board (PCB) assembly for an automotive assembly, comprising:

a printed circuit board (PCB) for connecting a plurality of electrical components, the PCB including a plurality of conductive layers each separated by a non-conductive layer;

an integrated conductive bus structure extending from a first edge of the PCB, wherein a first portion of the bus structure that extends from the edge of the PCB forms a plurality of electrically separate contacts of a connector and a second portion of the bus structure that is integrated within the PCB couples each of the contacts to at least one conductive trace of the PCB through plated holes, and wherein the assembly is overmolded with a plastic material and a portion of the plastic material forms a connector housing that surrounds the contacts of the connector; and

a filter block incorporated within the PCB approximate the integrated bus structure, the filter block providing inductive filtering for the contacts of the connector.

17. The assembly of claim 16, wherein the filter block is a ferrite material.

18. The assembly of claim 17, further including:
a plurality of capacitors positioned on at least one side of the assembly, wherein at least one of the capacitors is coupled between ground and each one of the contacts of the connector.

19. The assembly of claim 16, wherein the connector housing is shaped to receive a body of a mating connector.

20. The assembly of claim 16, wherein the integrated conductive bus structure is made of copper.

21. The assembly of claim 16, wherein the automotive assembly is one of an engine control module, a transmission control module and a sensor and power module.